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Soil Conservation

OCTOBER 1964
VOL. XXX, NO. 3

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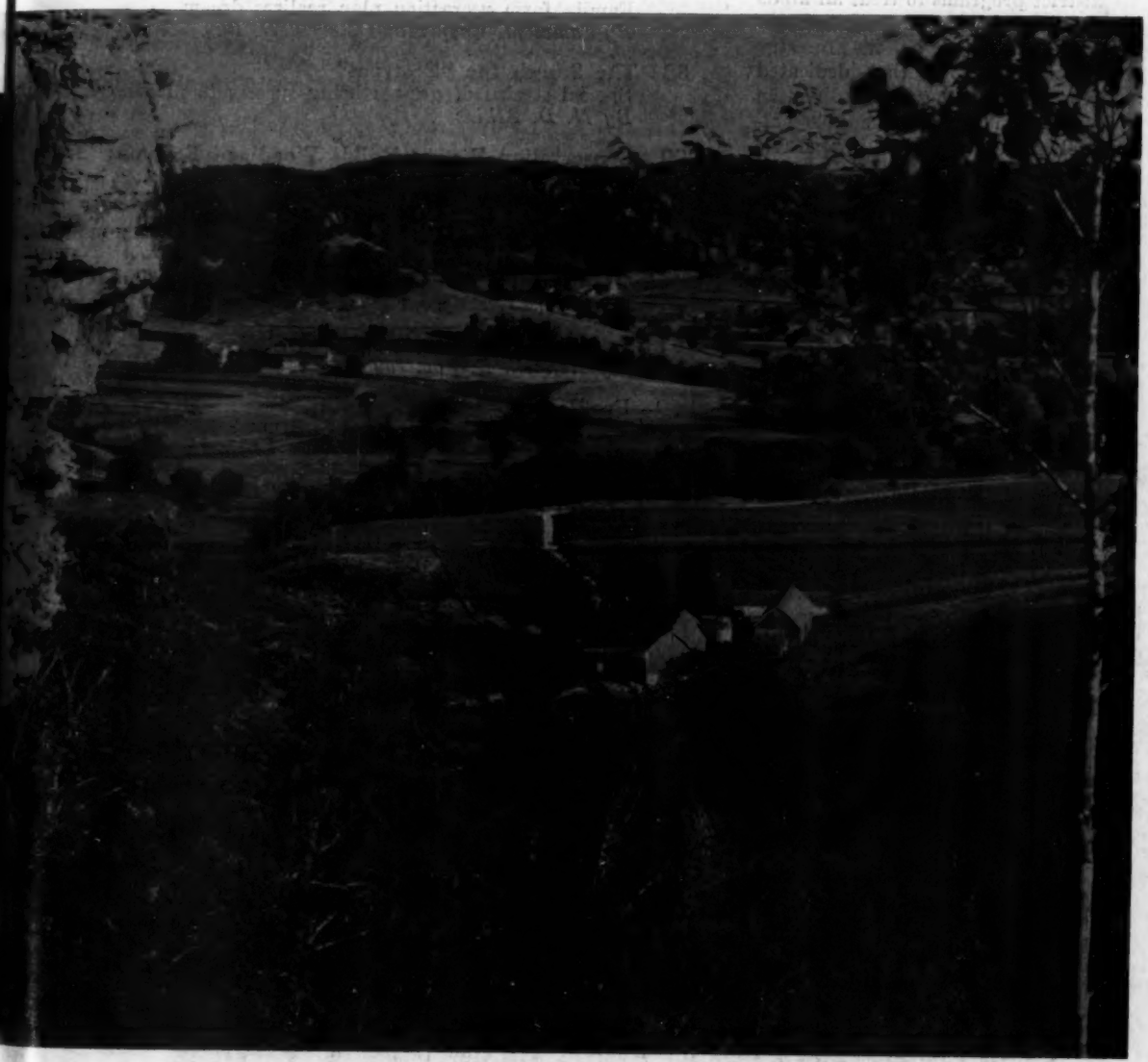
WOODLANDS IN RESOURCE CONSERVATION: KEY GOALS—Page 51

A Woodland Economy—Page 59 *Using Soils Information*—Page 63



SOIL CONSERVATION SERVICE • U. S. DEPARTMENT OF AGRICULTURE

OCTOBER 1964
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Woodlands in the Conservation Program

The Broad View . . .

AFA's 20 Key Goals for Conservation (p. 51) refute any notion that foresters can think of nothing but trees. We have noted in previous issues the broadening horizon of soil conservationists, the expanding role of SCS, and the modernization of soil conservation district programs to treat all kinds of resources. The broad-gaged program presented by the forestry association shows that dedicated group also moving in the direction of concern for all renewable natural resources as an inseparable package.

District RAD: For months we have been hearing reports of the economic revival of a rural community in the Northwest based on resource development and led by a soil conservation district. Finally, our Information Director Harper Simms and Tarleton Jenkins (Denver) went to Thompson Falls, Mont., talked to people, and came back with a fine set of pictures documenting a real example of Rural Areas Development (p. 59) based on the use and conservation of woodlands.

Cover Picture: Woodlands fit naturally into a pattern of conservation land use in this Wisconsin farm scene. Photo by E. W. Cole.

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Key Goals for Conservation

Soil conservation districts support AFA program on Nation's private woodlands

By T. B. Plair
Woodland Conservationist, SCS, Washington, D. C.

20 KEY GOALS

Control Forest Insects and Diseases

Prevent Forest Fires

Protect the Soil

Multiple Use for Maximum Benefits

Reforest Denuded Areas

Conserve and Improve Water Supplies

Provide Opportunities for Recreation

Improve Wildlife Habitat

Revegetate Rundown Ranges

Eliminate Fraudulent Mining Claims

Improve Access to Public Property

Expand and Intensify Research

Keep Resource Surveys Current

Assist Landowners and Processors

Utilize Available Credit

Adjust Property Taxes

Strengthen Educational Programs

Consolidate Land Holdings

Improve Utilization and Marketing

Cooperate With Other Nations

THE "Conservation Program for American Forestry," presented to the people of America as a policy statement by the American Forestry Association, finds ready endorsement by private landowners and professional soil conservationists.

Much of the program is already under way in soil conservation districts and small watershed projects across the land.

The AFA program was formulated by bringing together leaders in the related conservation fields of forests, soils, water, and wildlife to rough out the framework of the policy. The finished product was endorsed by the Fifth American Forest Congress in 1963 and approved by referendum of the association membership. It is the third such policy statement in 20 years.

The program has been published in *American Forests* Magazine, reproduced as a pamphlet, and widely distributed. For ease of understanding, it is summarized as "20 Key Goals," reproduced on this page.

To soil conservationists the most striking characteristic of these goals is their familiarity. They include many of the same goals that the Soil Conservation Service has helped apply in soil conservation districts and other phases of the national soil and water conservation program.

To appreciate the closeness of this Conservation Program for American Forestry to the programs of the SCS and soil conservation districts, we need only look at the accomplishments recorded on selected ones.

Protect the Soil

The prevention of soil erosion and deterioration was the initial mandate of the SCS. Ravages by water and wind still spell ruin for much of our land each year. The loss of tilth, fertility, moisture-holding capacity, and other desirable properties of the soil may be as serious to some landowners as the loss of an inch of topsoil itself. So, protection is needed against both loss and damage.

One widely used practice to protect soil is planting of windbreaks. During the past 30 years 145,000 miles of windbreaks have been established. Even so, there is still an estimated need of more than 300,000 miles of new windbreaks. The management, including replacement, of windbreaks may be an even more important job than the initial establishment.

Many other conservation practices are being used by landowners in soil conservation districts to prevent soil losses and damage. Amounts (in acres) of some important practices on the land are:

Conservation cropping system	131,705,000
Crop residue use	94,000,000
Range proper use	176,000,000
Woodland proper grazing	7,642,000
Stubble mulching	16,969,000
Woodland improvement	11,483,000

Reforest Denuded Areas

During the past 30 years, tree planting on private land, now mostly in soil conservation dis-

tricts, has resulted in one of the most dramatic changes in land use since the plow broke the plains. This change has been from generally soil-wasting to consistently soil-conserving use.

Some 9.8 million acres have been planted to trees by landowners with some assistance from both the forest industries and the public. This includes hundreds of acres of strip-mined areas and other mechanically disturbed surfaces which have been covered with new protective growth of trees and shrubs. Mostly this job has been done by individuals, some assisted by small contractors with one or two tree planters.

Soil interpretations in terms of suitability for tree crops, with special attention to species suitable for each soil, have been particularly helpful in many areas. With such information we can locate the soils suited to species most valuable for production of wood crops and those unsuited for tree planting of any kind.

Conservation needs estimates suggest that 72 million acres of non-Federal land needs establishment or reinforcement of tree stands; i.e., trees should be planted or seeded either on open land or in partially stocked areas. The more nearly this job is completed and the marginal conditions are approached, the greater will be the need for accurate interpretations of soils information.

Conserve and Improve Water Supplies

The small watershed program, under the Watershed Protection and Flood Prevention Act of 1954, has sparked an intense interest and much activity in water conservation and development.

In the total of some 575 watershed projects now in operation or completed, water impoundments have provided needed supplies for irrigation, for cities and industries, and for wildlife and recreation, in addition to reducing flood and sedimentation damages. Reforestation and woodland improvement have played an important part in the conservation treatment of these watersheds.

Provide Opportunities for Recreation

Much of the tree planting done with SCS planning assistance has resulted in improved recreation opportunities. Even though the primary objective was land use that would provide effective erosion control and soil stabilization, planted areas in most instances soon resulted in improved wildlife habitat. Better hunting followed.

Species often were chosen to enhance game production. Woodland borders were planned and established with wildlife as a primary consideration.

In many woodlot management plans, including specifications for cutting practices, game as a companion crop was an objective of land owners and operators. Much tree planting has been done to protect watersheds, large and small, as a means of improving water quality and water yield so important to fishing and other recreation uses of ponds, lakes, and streams.

Prior to the enactment of the Food and Agricultural Act of 1962, wildlife and recreation values resulting from woodland conservation practices had been regarded essentially as auxiliary or incidental benefits, as important as they may have been on many land areas.

Since enactment of that legislation greater emphasis is being placed on outdoor recreation as one of the several alternative uses to be considered in land use planning.

Recreation may be a primary objective in certain situations and by certain land owners and operators. In such cases, wherever woodlands or potential woodlands are involved, their establishment or treatment and management for recreation purposes becomes a part of the basic soil and water conservation plan for the farm, ranch, or other land unit.

Research and observation tell us that desirable space for many outdoor recreation enterprises has a combination of three basic ingredients: water, trees, and open areas. These natural recreation resources are needed for camping, picnicking, hiking trails, and nature areas. The combination enhances hunting, fishing, and other activities also. Soil conservation programs generally result in developing these three elements together for more effective recreation use.

Improve Wildlife Habitat

Most landowners who use any conservation practices do something that benefits wildlife. As yet, there has been no satisfactory way of evaluating the total benefits to wildlife habitats of the many conservation practices that are part and parcel of most good conservation farming.

Some indication of the many wildlife values found in the improved uses of soil, water, and plant resources are suggested by these accomplishments reported by districts: Wildlife habitat preservation, 5.9 million acres; wildlife habitat development, 2.4 million acres; fishponds stocked, 619,000. Add to these such things as striperopping, 19 million acres; pasture planting, 38 million acres; and croplands converted to wildlife uses, 2 million acres—to say nothing of the woodland planting and improvement and the windbreaks mentioned previously—and it is not difficult to see that wildlife has derived many benefits from the conservation practices in use by cooperators in soil conservation districts.

The need for further development of habitat for wildlife is extremely difficult to estimate. It is safe to say that interest in wildlife is being greatly stimulated by the increase in outdoor recreation.

(*Continued to page 68*)

Lumber Is Our Crop

Tennessee brothers harvest pine and hardwoods from timbered hills near Copper Basin

By C. M. Henninger
Woodland Conservationist, SCS, Cleveland, Tenn.

JUST 7 miles away from the barren wastes of the Copper Basin in Polk County, Tenn., pine and hardwood trees grow in well-managed stands on the hills of the Kimsey brothers' farm.

In contrast to the famed biological desert created by fumes from a former smelter plant, brown trout lurk in the clear stream running through bottom land where cattle graze on orchardgrass and clover pasture.

Floyd Kimsey checks young white pine reproduction.

The peaceful but prosperous appearance of this Turtletown Creek farm near the North Carolina line is the result of meticulous care of 50 years, culminated by nearly a decade of planned conservation in cooperation with the Polk County Soil Conservation District.

In contrast, too, was the condition of the farm when the father of Floyd, Oren, and Deyo Kimsey bought it in 1913. Then, all merchantable timber had been cut. "Only a few trees were big enough to cut a 2 by 4," Oren said.

"We thought that there would be a future in growing timber," said Floyd. "We took pains to keep out fire and encourage the better trees. We cut only what we had to have to supply the farm with lumber, and to fill bills of materials for houses and barns being built in the area. Most of this was from dead or dying trees."

And indeed there has been a future in "growing timber." Since 1957, 260 acres of woodland has produced 1.1 million board feet of lumber, an average of 4,300 feet an acre. It was sold for $73,919.40, and netted a profit of $37,936.08.

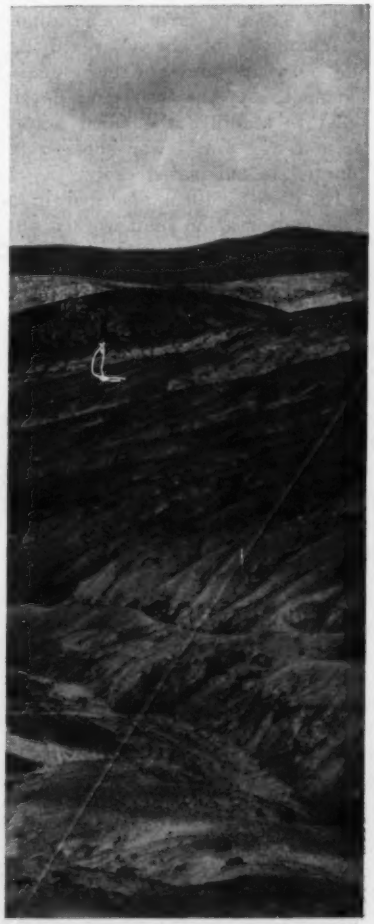
Another 60 acres will be cut this year—the seventh "compartment" in the 7-year, sustained-yield cutting cycle outlined in a farm conservation plan worked out with the district.

The brothers helped to organize the district in 1956, and Floyd has served as a member of the Board of Supervisors since that time.

The Kimseys sell lumber, not standing timber. Trees to be cut are selected and marked by foresters from the State Division of Forestry and from the wood-using industry. The trees are measured, and the brothers shop around for a buyer for the lumber that can be cut from the trees.

Then they contract for the logging, sawing, and hauling.

When a tree is cut, they mark the log to insure a large amount of 16- to 20-foot lumber, and to keep down waste in the tree tops. They work with the sawmill men to see that the lumber is processed to the specifications of the buyers.



Erosion scars the hills of denuded Copper Basin.

Oren (l.) and Floyd, two of the Kimsey brothers, sit on logs from one white pine tree that contained 1,200 board feet of lumber. In the background neighbors inspect lespedeza bicolor border planted to provide food for quail.

A nearby copper company has bought most of their pine lumber at $80 a thousand board feet, and from $42 to $60 for oak lumber. Their net income has been $34.51 per 1,000 for all lumber. Average stumpage prices in the area are $25 for pine and $15 for oak, as scaled by the Doyle rule.

Deyo tells about a special order for a white oak beam 6 inches by 12 inches by 36 feet. It took a lot of looking, he said, but they found one big enough to fill the bill.

The 420-acre farm has gradually changed its character during the 50 years under Kimsey management. As the woodland developed to stabilize the farm enterprise fewer and fewer acres were planted to cultivated crops.

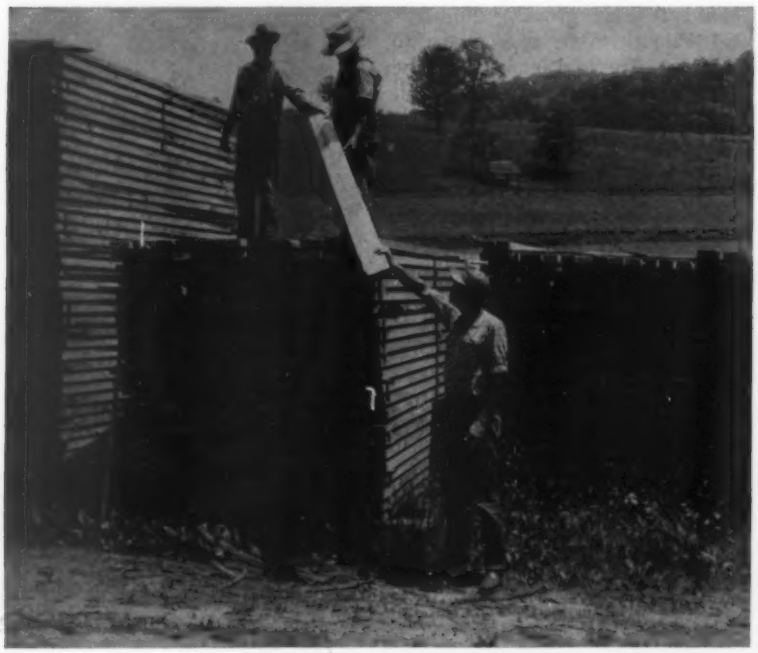
Its present form emerged in a 1956 conservation plan worked out by the Soil Conservation Service through the district. They set aside 100 acres of bottom land for pasture and hay for 40 registered Angus cattle, and a small field for corn. The Kimseys had the highest per-acre corn yields in Tennessee in 4 of the last 7 years. Their highest yield was 240 bushels an acre on 5 acres.

The woodland was divided into seven compartments and has been selectively harvested according to the plan each year except 1960, when prices were low.

Shortleaf pine is the principal timber species on the farm. On Fannin and Talledega silt loam soils the "site index" indicates a height growth of about 70 feet in 50 years.

Good stands of shortleaf, Virginia, and white pine, and of oak are developing in the logged areas. Young pines now growing in the compartment cut in 1957 are more than 10 feet tall. By the end of the second 7-year cycle, most of the area will have pulpwood-size trees to be thinned.

After each cutting the brothers go over the area with tree injectors



"We sell lumber, not standing trees." Left to right, Deyo, Oren, and Floyd Kimsey stack lumber they have harvested. Their farm conservation plan divides their woodland into seven compartments for rotation cutting.

and kill unwanted trees, and repeat the kill about 4 years later if needed.

But trees are not the only things the Kimseys like in their woodlands. There are quail, grouse, squirrel, and rabbits in abundance. Oren, the oldest of the brothers, favors the brown trout in the creek. Recently he landed one that measured 23 inches.

Floyd finds time to serve as scoutmaster for the local Boy Scout troop. Few youngsters have as good an opportunity to learn the lore of the forests—and the meaning of woodland management and soil conservation.

"We will be selling timber from our woods as long as we are here," says Floyd. "And whoever gets the farm after we are gone will have good timber."

Brady's Hills Ski Area

Family farm recreation plan realizes dream of four generations in Michigan woods

By James M. Cooper and Merrill D. Ray
Area Conservationist, Jackson, and Soil Conservationist, Stanton, Mich.

BRADY'S HILLS ski area, near Lakeview, Mich., is a dream come true. The idea was originated by Brede (pronounced Brady) Paulson, who purchased the present holding in the late 1870's primarily for timber production. Brede was an ardent skier in his native home of Risa, Norway, and his love of the sport was shared by his wife.

Unfortunately, however, Brede did not live to see his dream become a reality. It was 1956, 6 years after his death, that his son Arthur cleared the first ski runs.

The ski area is nestled among 400 acres of second growth hardwoods. In the 1890's 8 million feet of virgin red oak was cut from this woodland. Since that time many feet of piling have been cut for local bridge work and for docks along the east coast of Lake Michigan and Saginaw Bay area.

The woodland is part of 740 acres which Arthur Paulson and his two sons—Jack and Rick—operate as cooperators in the Montcalm County Soil Conservation District. They have a complete soil and water conservation farm plan which Soil Conservation Service personnel helped them develop.

Timber stand improvement recommendations of Lloyd Cogswell, Michigan Department of Conservation's District Forester, are part of the overall conservation plan. Future operations call for cutting all salable timber and underplanting the oak stand to faster growing white pine.

"Timber stand improvement has always been an outstanding feature of the Paulson farm," according to R. W. "Wally" Petersen, who owns the farm adjoining the Paulsons. Petersen is a director of the Montcalm County district and also a director of the National Association of Soil and Water Conservation Districts.

Brady's Hills is an excellent ex-

When it's time to eat, get warm, or talk skiing with the other fans, the Redwood Inn is the center of attraction.

ample of a family farm operation using recreation to supplement farm income. As part of their coordinated conservation plan, the Paulsons use cover crops, crop residues, conservation cropping systems, plow-planting, and waterways to conserve the soil and water resources on their 320 acres of cropland. This year the Paulsons helped Montcalm County retain its status as the leading producer of colored beans in the United States by raising 120 acres of them.

In 1962 and 1963 they established 80 acres of wind stripcropping to help control wind erosion on their loamy sand soils.

They plan to install tile systems on the imperfectly and poorly drained soils of the farm. A newly constructed shallow surface ditch will provide surface drainage on 60 acres of the Paulsons' farm and 30 acres of an adjoining farm.

For their great progress in planning and application of soil and water conservation practices, the Montcalm County district awarded them a district cooperator sign this year.

Ski runs in the Lakeview area were nonexistent before 1956. The closest were at Grand Rapids—50 miles to the south—and Cadillac—80 miles north. Local enthusiasts from Lakeview—desirous of good skiing locally — encouraged the Paulsons to proceed with their ski runs. This interest proved to be the incentive the Paulsons needed.

Six ski runs were developed in 1956. Now there are 10. One rope tow was operated by a gasoline engine in 1956. The 1965 season will see 6 electrically operated rope tows, using a total of nearly 8,000 feet of rope.

The whole ski operation has been completed with family labor and tools except for 10 hours of heavy bulldozing. Local carpenter help was also hired to complete the finish work on the ski lodge.

This winter, newly installed snow-making equipment will as-

Skiing is good sport for the little ones as well as their parents. An employee in the ski lodge fastens a tow ticket on a young customer.

On a winter weekend, the ski runs, cleared out of the wood, and the snow-covered field are a busy area. Stripcropping in the foreground protects the Mancolona loamy sands from wind damage.

sure good skiing. More than 1 mile of pipe will be in place to facilitate snow making. A new 8-inch well will supply water. Art says: "Snow-making equipment is a must in our area." Natural snow at Brady's Hills last season afforded only two fair weekends of skiing.

Brady's Hills skiers are primarily 1-day participants. Weekend skiing by local fans constitutes the bulk of the trade. Charles Miel, lawyer from nearby Stanton, says: "Brady's Hills provides an opportunity for local skiers to enjoy the sport without traveling a long distance."

Many out-of-State skiers also use Brady's Hills. According to Jack, many customers stop for a day's skiing on their way to or from larger ski areas to the north. And some skiers use local lodging at the Lakeview Hotel and local motels to spend a complete weekend at the Paulson's ski area.

A good Sunday afternoon will find 300 to 400 skiers at Brady's Hills. The Paulsons plan to develop their slopes to accommodate 1,000 skiers a day.

Rick, a certified ski instructor, and 3 other instructors provide ski instructions to more than 400 persons a year, including many local district cooperators and their families.

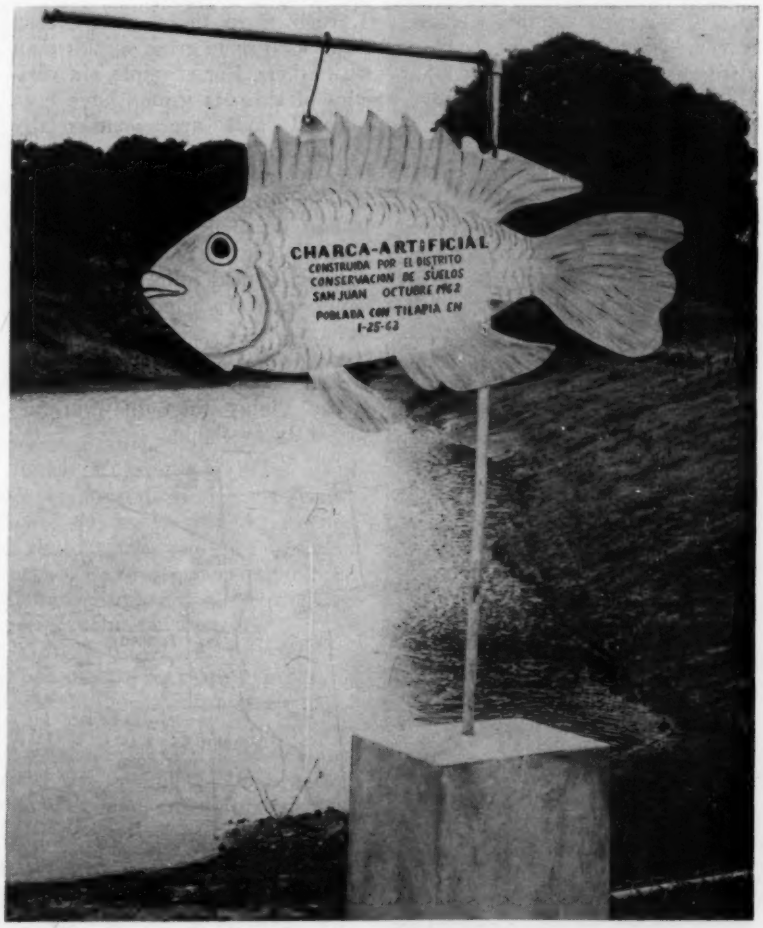
Redwood Inn, just west of the ski slopes, is the pride and joy of Genevieve and Janice Paulson, Art's and Jack's wives. They serve lunches to skiers and operate a reservation service for banquets during off-ski months.

All of the Paulsons ski, except Genevieve. Even Jack's 3-year old son, Brady, is already on skis. He stands to benefit a great deal from the dream of his great-grandfather and the efforts of his grandfather and father.

The Paulsons plan to expand to other recreation enterprises as soon as time and finances permit. Summer facilities, such as trails and picnic areas in the woodland area, are being considered. Also, fox hunters in the area claim that the Paulson farm affords them the best of hunting.

Perhaps the sentiment of the community towards Brady's Hills is best summed up by "Wally" Petersen's statement: "I have watched the progress of this family farm operation with interest. Here is a fine example of teamwork, wise land use, and a deep concern for soil and water conservation." Significant, too, is the fact that the Paulsons hire about 10 local people during the ski season to assist with ski patroling, ski equipment rental and sales, and help in the Redwood Inn.

FISH POND IN PUERTO RICO



This sign of the State Penitentiary Farm in Rio Piedras, Puerto Rico, proclaims that the pond was constructed by the San Juan Soil Conservation District in October 1962, and that it was stocked with Tilapia on January 25, 1963. The Soil Conservation Service provided technical assistance through the district.

The Search for 'Ecotypes'

Special strains of grasses bring success to plantings in specific areas

By M. D. Atkins
Plant Materials Specialist, SCS, Denver, Colo.

THE development and release of grass varieties adapted for use in specific and limited geographic areas is the result of extensive testing and research by Soil Conservation Service plant materials specialists and their colleagues in Federal and State experiment stations.

In the Great Plains, where grass is so important, much of the work has been devoted to a search for adapted "ecotypes" to meet specific field needs. In recent months, the work has been intensified in response to the requirements of the Cropland Conversion Program. Special effort is being concentrated at the Plant Materials Centers at Bridger, Mont., and Bismarck, N. Dak., to find additional ecotypes for the portion of the northern Great Plains still lacking adapted varieties.

An ecotype is a subdivision of a species or other biological unit that thrives best in a specific environment, often quite limited in extent. Within each grass species there may be many ecotypes that reflect the conditions of climate, soil, and site of their different origins.

SCS plant materials workers take collections representing such ecotypes to the plant centers for initial evaluation and increase. The aim is to develop varieties or strains for a specific area, site, soil, or field condition. Selections that appear to have value are further studied in field plantings on farms of soil conservation district cooperators.

The SCS collecting and testing work is not the only effort of this kind. In some States research workers also are breeding, selecting, testing, and developing grass varieties that have value in the conservation program.

Much more progress has been made with some grass species than with others. For example, six varieties of sideoats grama have been released and are commercially available. All have been used to some degree in range seeding and in other permanent plantings. Each is best adapted to a specific geographic area.

Further field collections of sideoats grama are being assembled to determine if selections can be made that are better adapted in certain sections of the northern Great Plains than the varieties presently available.

Areas of best adaptation in the Great Plains for six varieties of sideoats grama that have been released and are commercially available.

Similar progress has been made with other grass species of importance in the Plains. The Blackwell, Caddo, Grenville, Neb. 28, and Kanlow varieties of switchgrass have specific geographic and site adaptations. The same is true for Cheyenne, Holt, and Neb. 54 indiangrass and the Kaw, Woodward, Elida, Pawnee, and Champ strains of big bluestem and sand bluestem. There is a need for adapted varieties of little bluestem, western wheatgrass, blue-grama, and other grass species that have important conservation uses.

For the program of variety development to be a success, it must be generally accepted that one variety is superior to others for a specific geographic area. This fact is recognized for cultivated crops but not generally for grasses.

Variety names are being made a part of SCS technical guides and specifications. Grass variety or seed origin is usually indicated by seeding specifications for seeding range, planting pasture, establishing vegetation on watershed structures, and seeding highway rights-of-way.

In some States the Great Plains Conservation Program and ACP practice specifications reflect an increased cost-share rate for adapted varieties. As adapted named varieties are developed, accepted, and used, grass seedings and conservation treatment on the land will be more effective.

◆

Resource Development

Resource development, in either rural or urban areas, consists of identifying, unifying, improving, and using the human, natural, and physical resources available to achieve more satisfying living.

Clover-grass Pastures

University of Tennessee Extension dairy and livestock specialists report that good clover-grass pastures produce more milk and beef than straight permanent pastures.

In Montana's Clark Fork Valley . . .

Conservation District Builds Woodland Economy

AN unusual combination of business enterprise, resource conservation, and local leadership has brought new economic stability to a broad timber-producing valley in northwestern Montana.

An area of hitherto marginal farming with only brief periods of prosperity, the 60-mile-long valley of the Columbia River's Clark Fork had previously experienced only two periods of general economic well-being: during a brief interval when dairying was profitable and again when scores of workers came in to build a power dam.

Result of Big Burn

Much of the valley floor—10 miles wide in places—is covered with stands of pine, fir, and larch of small diameter. The uniform size, oldtimers explain, is a result of "the Big Burn" in 1910.

For years the Green Mountain Soil and Water Conservation District, which serves the valley's 200 farmers, had been searching for a market for the area's most dependable crop, its small timber.

In the summer of 1960, George Reller and his two sons, Glenn and Dale, sold their interest in a sawmill at Bozeman and began looking for a site for a modern all-electric sawmill. Reller believed that a successful business could be built on the use of small logs like those of the Clark Fork area.

The hunt led to Chairman Paul K. Harlow of the conservation district's board, who had already been talking to mill operators in the area about buying locally produced trees for pulp.

The outcome was a contract between the district and the Rellers in which the district agreed to supply a continuing flow of wood from the valley's farmlands or from the adjacent National Forest. The Rellers agreed to build a mill to specialize in the kind of timber available.

The district in turn worked out an agreement with the farmers to sell their timber on a continuing basis for 20 years. The initial price was $13 a cord, to be adjusted periodically according to the Western Pine Association index.

The Soil Conservation Service stepped up its work in making and interpreting soil surveys as a guide to best use of woodland sites and in conservation planning.

Other Federal and State agencies — Forest Service, Farmers Home Administration, Agricultural Stabilization and Conservation Service, Extension Service, and the Montana State Forester—provided special help for farmers.

State and Federal foresters assisted in the harvesting program. ASCS authorized funds for cost-share help in timber stand improvement. The FHA made loans, based on complete conservation plans for land and improvements.

Small Business Loan

The Rellers obtained a $350,000 loan from the Small Business Administration and $60,000 in Rural Electrification Administration

Most woodlands of Clark Fork Valley are trees of small diameter. Thinning and pruning release them for faster growth.

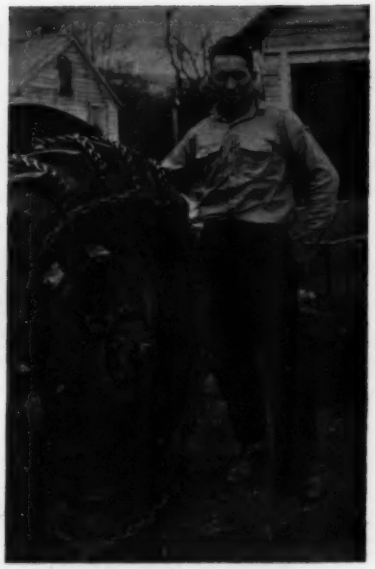
The new sawmill at Trout Creek brought economic stability to Clark Fork Valley. The Green Mountain S&WCD negotiated the contracts that made it possible.

The chipper, which turns peeled slab into salable pulp for paper manufacture, is important part of equipment. Dale Reller checks output.

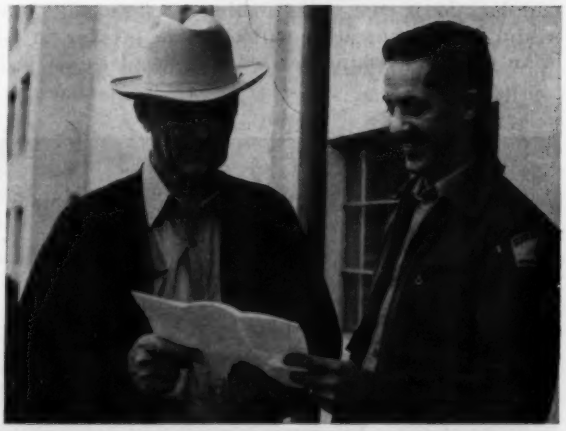
Major product is 8-foot 2-by-4's cut mostly from small diameter logs. Here they ride a chain carrier to drying kiln.

Former District Supervisor B. R. Jobling operates his loader for the 4-mile haul from his farm to the sawmill. Lower center: Lloyd Austin, a supervisor of the Green Mountain district, bought equipment and works full time in logging operations. Here he talks to Ronney Pirker (c.), owner of 160 acres of woodland, and SCS Conservationist George Gable.

Operators of the mill are the Rellers—George (l.) and his sons, Dale and Glenn.



From 8 to 5, on week days, Andy Marich of the White Pine Community operates the "head rig" at the Trout Creek mill. He operates a dairy farm and sells timber on a continuing basis under the district's contract.



County Agent J. H. Mikkelson (l.) of Thompson Falls and Forester Charles (Chuck) Wright of Missoula, of the Montana State Forester's staff, both have played leading roles in the valley's woodland development.

Glenn Hill of Belknap pauses at the scale as he delivers a load of small logs to the Trout Creek sawmill, one of the few in the Northwest buying logs by weight.

funds. First State Bank of Thompson Falls participated in the SBA loan to the extent of 10 percent. A total of $780,000 was spent on construction of the plant. While the mill was being constructed, the Rellers were stockpiling logs.

The mill began operation in the summer of 1961.

By September 1 that year, the farmers had delivered 4,757 cords, for which they received about $62,000. The mill's payroll for August 1961 was $17,014. The August payment to farmers for logs was $19,000. Payments to farmers and mill hands have continued at about the same pace.

President Glenn H. Larson of the First State Bank said business of his bank immediately reflected the new activity and income. The mill, he said, is on a sound footing with a healthy operating outlook.

An auto dealership operated by the Gill brothers, Henry and Robert, reports a 20 percent increase in sales of both new and used cars.

And newspaper publisher K. A. (Doc) Eggensperger says his advertising sales are reflecting the general business improvement.

Farmers Respond

Farmers who were barely able to keep their enterprises going are enthusiastically entering into the new arrangement. They are investing in farm improvements, equipment, and in household appliances they had not enjoyed previously. Many are harvesting their own timber, a recommendation of conservationists.

When the mill shut down for a brief period the immediate drop in business reflected it.

The mill buys logs in 8-foot lengths or in 8-foot multiples, as small as 5.6 inches at the smaller end. It mills mainly 2-by-4 studs.

Paul K. Harlow, chairman of Green Mountain District Board, led the hunt for a market for the valley's main crop—trees—that led to a contract between the district and the mill.

The addition of chipping equipment to make use of the peeled slab has proved a sound investment. The chips go by rail to a paper mill in Lewiston, Idaho.

Chairman Harlow of the Green Mountain district believes an ample supply of logs for the mill can be harvested on a conservation basis year after year. Until the flow of logs can be increased, the district is also buying logs from public land on the adjacent mountain slopes.

Farmer Herb Kraus, who drives the school bus and harvests logs on his farm, drops into the grocery at Trout Creek. John (c.) and Joe Cernik, operators, see the healthy impact of the mill and its jobs on business in the valley.

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Rural Areas Development

Rural Areas Development is a major USDA effort to keep all farm communities prosperous and to restore prosperity to those bypassed by technological developments.

The Government's Rural Areas Development Program is designed to help people who help themselves —not to provide all the answers or all the financing.

Soils Information for Woodland Planning

By Paul E. Lemmon

Soil-Woodland Specialist, SCS, Washington, D. C.

SOME soil areas are excellent for growing timber but some are of poorer quality. Many are not productive enough to justify forest management. Others, although productive, have important management hazards and limitations that prohibit or severely restrict their use. Many areas could more appropriately be dedicated to other uses, such as range, wildlife habitat, and areas of human recreation.

How do we distinguish between the good and poor areas for timber production, the areas best suited for agricultural crops, and those that should be devoted to other important uses associated with forest cover? This is an important land-use question, because about a third of our total land area is woodland.

A wealth of scientific information and practical experience are available about soils, climate, and related subjects to help make these decisions. The information needs to be interpreted and presented in a way that permits its use by landowners.

Soils Are Key

Soils are the result of the combined "forces" of the environment. Each kind occurs in characteristic locations, and reoccurs whenever the same conditions are found. Soil scientists have developed methods of describing, in the field and in the laboratory, the many different soil characteristics. They can show by soil-mapping units, the location and extent of each different kind of soil.

Each can be interpreted separately for different uses, such as cultivated crops, pasture, range, engineering, and woodland.

In making full use of soil maps for woodland planning, it is helpful to consider the methods of developing woodland interpretations of soils by rating items which limit their uses for trees. For most of the items, adjective ratings of *slight, moderate,* and *severe* are generally used to express relative degrees of suitability.

Determining Suitability

Determining woodland suitability of soils includes: (1) Rating soils, (2) grouping them to simplify the presentation of information, and (3) summarizing the information in easily understood and usable ways.

We rate soils—each different kind shown on soil maps of a survey area—for two kinds of things: (1) Biological responses of crops, such as forest trees or forest types, and (2) physical performance of soils under management treatments.

The most commonly rated items are:

(1) Potential soil productivity for designated woodcrops (tree species or forest types). Ratings come from measurements of total height and total age of selected dominant and codominant trees in stands growing on identified soils.

Adequate sampling of different kinds of soil provides a usable average site index. This can be translated, through published forest research, into:

(a) How much yield can be expected at various ages.

(b) How big we can expect the trees to be at certain ages.

(c) How many trees of certain size will occur in fully stocked stands.

Potential soil productivity is basic to any economic considerations of woodland management.

(2) Species suitability for different kinds of soil. What species is most suitable for each different kind of soil, either to plant, if this is the method selected for regeneration, or to favor for final harvest trees if you are managing existing stands?

These ratings comprise priority listings of suitable trees for planting, or preferred species to favor in managing existing stands.

(3) Seedling mortality (or regeneration potential) of each soil. What can normally be expected in terms of survival and establishment—largely in the first and second years—after planting, or after treatments designed to provide natural regeneration? Soils differ in this respect when compared under comparable conditions.

(4) Equipment limitations, sometimes called trafficability. This includes suitability for such things as planting equipment, seedbed preparation equipment, trucks, different kinds of tractors, and specialized logging equipment. All such operations are influenced by such soil conditions as wetness, fineness, or coarseness of soil texture, stoniness, and the like, and by such physiographic conditions as steepness and shape of slope. These factors interact to cause limitations or restrictions in type and use of equipment.

(5) Plant competition (or brush encroachment) is affected by kind of soil. It influences management decisions to assure adequate establishment and growth of new stands. Ratings are based on ecological and silvicultural research.

(6) Erosion hazard is an item which can be of considerable im-

portance even though forests are considered one of the most erosion-resisting land uses. Usually erosion results from a disturbance of vegetative cover and is often a critical factor in maintaining roads, trails, landings, and others. In addition, the offsite influences of flooding and sedimentation need to be considered in planning woodland management treatments or operations.

Over the years, we have accumulated much information about the relative erosiveness of different soils when the cover is disturbed and are thus able to rate each soil-mapping unit.

(7) Windthrow (or blowdown) of valuable timber is a serious hazard on some soils and for certain species. This is especially true during periods of high wind and soil wetness. The problem may be aggravated by timber cutting.

(8) Pest and disease hazards are sometimes related to different kinds of soil.

The Texas leaf-cutting ant, that interferes with regeneration of pine stands some places in the South, is a good example of a pest hazard that is soil related. The probable severity of its activities can be related to soils as shown on maps.

The littleleaf disease of pine is an example of a disease that is related to soil conditions.

(9) Suitability for special products is an item of importance in managing many woodlands. These may be major products in some cases, but generally they are supplemental to other forest products to be harvested. Such things as Christmas trees, decorative greenery, maple syrup, turpentine, and even range, wildlife, and recreational values, may be rated. These ratings take the form of *well, moderately well,* and *poorly* suited.

Suitability Groups

Soil surveys are made to serve many users—farmers, livestockmen, horticulturists, foresters, engineers, hydrologists, and others. In short, soil surveys are made for all those interested in land-use planning. To serve these many users it is often necessary to make more soil separations on a map than are needed to serve any one user. For this reason, we group soils to simplify the presentation of information for different uses.

Usually, all the soils in a survey area can be combined, with the help of the ratings discussed above, into a few groups that show the significant relationships needed for woodland uses. Each woodland suitability group is made up of soils that produce similar kinds of woodcrops; that need, under the same vegetative conditions, similar management to produce these crops; and that have about the same potential productivity.

Summaries for Users

We summarize the information and make it available for woodland users. Such summaries have been included in many recently published county soil surveys.

These summaries include a table showing the soil-mapping units organized into woodland suitability groups. There is a generalized description of each group. Then, for each group, there is a complete list of the soils included; a statement of the average potential productivity for important tree species or forest types; average ratings of the items discussed above; and a brief discussion pointing out how the ratings may influence management decisions.

Summaries of soil-woodland interpretations are available for use as soon as they are developed. The information is on hand in offices of the Soil Conservation Service in the form of technical guides. These are available for use in areas where published soil surveys are not yet available.

Soil-woodland interpretations are being summarized for major land resource areas within which soil, climatic, and other conditions are similar. This information by resource areas provides efficient use of public information beyond the political boundaries of county lines.

Using the Information

Using woodland suitability information in land-use planning can be most helpful by: (1) Identifying areas of similar woodland suitability; (2) subdividing these areas to show present stand and condition information; and (3) combining this with other current information as an aid to selecting fields or treatment units.

These subdivisions show the extent and location of areas that are similar both with respect to woodland suitability and present stand and condition of existing vegetation. Management prescriptions can then be made for these subdivided areas, and their responses and yields can be predicted.

Using soils information as described provides a basis for considering both the physical and biological resources of each separate ownership. Equally important in woodland planning is consideration of the individual operator's circumstances and the conditions confronting him in making best use of his woodlands.

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Gully Control

Many gullies are created by accelerated erosion resulting from man's misuse of the land. These gullies should be controlled. USDA Farmers' Bulletin 2171, prepared by the Soil Conservation Service, recommends these methods:

Fence in the small- to medium-size gullies having small drainage areas and keep out livestock.

Plant gullies in adapted species of grass, shrubs, or trees used separately or in combination.

Divert runoff away from a gully head by a diversion ditch or by terraces or contour furrows.

Change gullies to grass waterways.

Use structural measures.

Field Windbreak Patterns Protect Irrigated Sand

DRY sand and wind make for hazardous farming in Portage County, Wis.—without conservation know-how, that is. Add water and windbreaks and you have a winning combination.

The stakes are high. Potatoes, snap beans, cucumbers, sweet corn, peas, and other high profit crops give extremely high yields under irrigation and proper fertilization. And there is a vast reservoir of water beneath the central Wisconsin sand plain that covers the southern 40 percent of the county.

Wind erosion is still a big problem due to the erosive nature of the soil and the intensive farming practices required to grow the most desirable crops. Progressive landowners know that permanent solutions must be found.

A leader in the battle against erosion has been the Okray Produce Company which has teamed up with the Soil Conservation Service to find the best species of trees to grow in the sand of the region.

This teamwork began with trial plantings along the Wisconsin River. Willows, poplars, and elms were tried along with some eastern ninebark and siberian peashrub. Some of the early plantings are still around, but experience to date has shown red pine to be the all around best bet for this sandy country.

Maturing red pine windbreaks protect irrigated potato land in Portage County SCD.

Since the trial plantings, Okray Produce Company has set out more than 5 miles of pine windbreaks. Some are single-row red pine, some are 3-row red pine, and some 3-row red and white pine. These are planted with the red pine in the outside rows and the white pine in the middle. They are all spaced 660 feet apart and in a north-south direction.

Of the windbreak plantings made in 1959, Farm Manager John Okray says, "They are only 6 feet tall but already we can see the protection they give."

Older windbreak plantings have already proved their worth and have encouraged vegetable growers to follow suit.

The combination of irrigation water, obtained here from a pit dug in high-water-table sands, and field windbreaks makes vegetable growing practical.

SCSA Meeting Theme Is Time, Space, and Demand for Resources

"Time, Space and Demand for Natural Resources" was the theme of the 19th annual meeting, Soil Conservation Society of America at Jackson, Miss., Aug. 23-26.

The Society's membership of more than 10,000 unites the interests of all scientific and technical disciplines related to "the art and science of good land use."

Its 10 technical study committees, at work on policy statements as guidelines for their fields of interest, reported at the meeting. They are: Conservation Education, Conservation Economics, Conservation Research, Land Use Planning and Zoning, Land Utilization, Mined Area Restoration, Outdoor Recreation, Professional Training, Urban-Suburban Conservation Problems, and Water Resource Management.

One day was devoted to field trips. One tour visited cotton farming in the delta. Others reviewed southern hardwood forestry, southern pine forestry, a watershed project, and the U. S. Army waterways station.

Ohio Conservation District Aids Water Development

WATER development projects are receiving priority attention from the Soil Conservation Service and other agricultural agencies in Jackson County, Ohio, this year because of a decreasing rainfall over the past 2 years that has left most wells and ponds at a record low level.

The special effort on the part of the Jackson Soil and Water Conservation District and cooperating Federal agencies will help double water-development projects as compared with previous years.

After last summer, with just enough water, landowners have sought help to insure against another year of critical shortage. The Jackson County Soil and Water Conservation District supervisors in their January planning meeting gave water-development projects first priority for 1964. The action authorized SCS to give more time to landowners who need water, according to District Chairman Wayne Brown.

Agricultural Stabilization and Conservation Service granted additional money to projects for cost-sharing assistance to landowners needing water. Farmers Home Administration declared emergency loans may be granted to farmers for water development at 3 percent interest rate. Extension Service has begun to inform landowners not familiar with services available to them.

In developing soil and water conservation plans with SCS technicians a landowner has the opportunity to weigh advantages of alternative possibilities of a pond or spring development. Several landowners who already have developed some water sources said it was well worth the cost and some have made plans for developing more water sources.

Attorney George Scurlock of Lick Township received ACP cost-sharing for developing a spring for livestock in 1962. "I would have had real water shortage during last year's drought if it weren't for the spring development," he said.

George Smalley, a Scioto Township farmer and chairman of the Rural Areas Development Agricultural Committee, said he has a pond and two spring developments for livestock water. He said he plans further to develop a hillside seep into a spring this year.

The George Smalley spring will be developed by intercepting the hillside seep with field draintile. The collected water will flow into a small catchbasin, and the overflow will be gravity fed to a 500 gallon cement tank.

Another Jackson County cooperator, Thornton Wilson, developed a wildlife pond during the summer 1962. It was designed, and construction was supervised by SCS technicians. Wilson has since expressed great satisfaction with the facility as a source of water for fire protection, recreation, and other benefits as well as an attraction to wildlife.

The experience of Jackson County landowners over the past few years has deeply impressed them with the importance of water to rural area development—WILLIS J. RIDENOUR, *work unit conservationist, Jackson, Ohio.*

A spring development provides clear drinking water for George Scurlock's beef herd.

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Increase Size of Farm

Virginia economists believe that the problem facing the State's agriculture in the future is increasing the size of farms. It is essential that the farm be large enough that the farmer can afford to own and operate modern machinery.

Gravel Mulches

Laboratory and field studies reported by Colorado State University engineers show that gravel mulches constitute a promising method of reducing evaporation from bare soil subject to frequent light rains or irrigation.

American Forestry Association Sponsors Multiple Use, Conservation

By **Kenneth B. Pomeroy**
Chief Forester, AFA, Washington, D. C.

THE American Forestry Association, which holds its 89th annual meeting in Asheville, N. C., October 18-21, can well share with its meeting place the motto, "Cradle of Forestry in America," which also is the meeting theme.

Created in 1875, AFA is one of the Nation's oldest conservation organizations. It was active in the late 1800's in the campaign for creation of the Federal forest reserves—later to become the National Forests.

Biltmore estate near Asheville, established in the same period by George W. Vanderbilt, became in 1889 the site of the first forestry school in America. Two years later Vanderbilt hired Gifford Pinchot to take charge of Biltmore Forest with instructions to make it an example of practical forestry in America.

Biltmore estate is now one of the conservation showplaces of the Southeast, and nearby are such forest attractions as the Pisgah National Forest and Great Smoky Mountains National Park which association members will visit during the meeting.

The American Forestry Association, with a membership of about 40,000, advances nonprofessional understanding and interest in forestry and conservation in general.

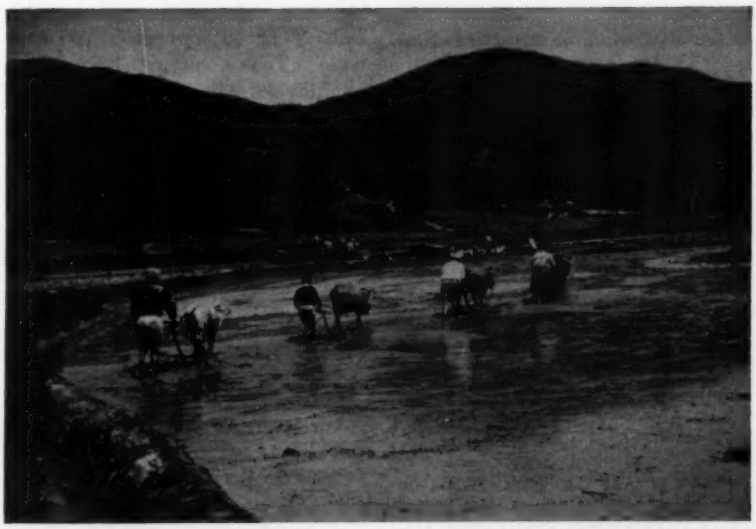
Its objectives, as initially defined were "to secure forest preservation (by) — education, leading the public mind to see the necessities of the situation; and legislation, establishing proper methods of dealing with the situation."

The only major change in this statement of purpose occurred in the early 1900's after the forest reserves had been withdrawn from homestead entry by presidential proclamation. The association adopted "Conservation Through Wise Use" as its guiding principle.

The wise use concept recognized the desirability of assigning areas of unusual character to special uses, such as park, reservoir, wilderness, or refuge. It also recommends that other forest lands be managed for all compatible uses in order to provide maximum benefits to the economy and to society. These multiple uses include production of timber, water, forage, and wildlife plus opportunities for outdoor recreation.

The association attempts to implement its program by the impartial presentation of relevant facts in *American Forests* Magazine, by providing direct contact with nature through its Trail Riders of the Wilderness, by preparation of books such as *Knowing Your Trees*, by conducting special projects such as fire prevention campaigns, appraisal of forest resources, and studies of land ownership, by review of regional problems at annual meetings, and by periodic analysis of national trends at Forest Congresses, and by presenting the association's views to the Congress of the United States.

WATER LEVELING IN KOREA



Land leveling under water may be a new technique for American rice farmers, as reported in the June issue of *Soil Conservation* Magazine, but a reader submits evidence that it is a traditional practice in the Orient.

John R. Ulrich of Spokane, Wash., contributed the above picture of Koreans plowing their fields under water. "Being a great admirer of the inventive genius of the Koreans (iron-clad war vessels and radiant heating hundreds of years before their occidental discovery)," he says, "I'm convinced that they knew about water leveling all along."

Key Goals

(*Continued from p. 52*)

This will create a demand for more wildlife and therefore better habitat, and possibly a greater appreciation of the multiple benefits of conservation farming.

Revegetate Rundown Ranges

During the past 30 years landowners in soil conservation districts have been assisted with surveys of their ranges to determine sites and conditions on 67 million acres. Plans made by ranchers with SCS professional guidance include appropriate conservation practices for range improvement, including reseeding.

The need to improve and protect plant cover is still a major need on America's rangelands. Conservation needs data indicate that more than 365 million acres of non-Federal rangeland needs establishment or protection of plant cover.

Assisting Land Owners and Processors

As applied in soil conservation districts, this means helping land owners plan and apply coordinated conservation and resource-use plans to their entire holdings; i.e., to help them appreciate the benefits of using each acre within its capability and treating each acre according to its needs for continuous effective conservation use.

The SCS's responsibility is to help landowners appreciate what is needed, why it is needed, and how to do it or get it done.

This is a continuing job; it will never be finished. The fact that SCS has assisted, through and with the help of soil conservation district governing bodies and others, 1½ million out of the 4.8 million land owners and operators in the United States, does not suggest that the job is a third done. If land owners were always the same and their conservation problems were always the same, and if the answers to all the problems were known, then we might assume that a third of the job was completed.

Instead, this job of assisting landowners to plan and apply conservation treatments to their land is broader than it was 30 years ago when the SCS was still an infant. This is so because we continue to learn how to do more conservation jobs and to do them in a more effective way; land owners discover that they need more conservation treatments than they originally thought; and the objectives of resource use change with changing conditions. The whole land use field is a volatile, seething, melting pot of social, economic, and technical change. Each major shift in land and water use calls for more intensive, and ordinarily more expensive, conservation treatments.

As an example, field windbreaks in the northern Great Plains as installed 30 years ago usually were 7 to 10 and even 20 rows wide. Today, many 1-row field windbreaks are being planted.

Width and composition of modern windbreaks vary with the objectives of the plantings as well as the physical conditions of the sites. They are different from earlier plantings because improved species are now available, planting techniques are improved, and cultivation and weed control methods and machines are improved. The windbreak job today is not the same as 30 years ago.

Similar technological changes have occurred for most plant technologies. Social changes likewise have affected the way land is used.

The Other Goals

The other Key Goals are of interest to all conservationists and are of direct concern to many. They are objectives to be sought wherever there is the need for them to serve human resources. Each of them, appropriately implemented, can contribute significantly to the realization of maximum benefits through multiple use of natural resources.

Noting the relationship between some of the Key Goals and the work already accomplished by soil conservation districts is another way of endorsing the American Forestry Association's Conservation Program. It certainly suggests a oneness of purpose among conservation organizations and agencies and the opportunity through cooperation to advance the intelligent management and use of forests and related resources of soil, water, wildlife, and outdoor recreation.

Sediment Threat Stirs Landowners

BOWMAN-SPRING Branch watershed in southern Nebraska is a scene of concerted activity by local residents who are trying to reduce the threat of silt in new floodwater dams developed in the watershed project.

Although incomplete, the watershed project has already begun to halt erosion, channel debris, floods, and sediment.

Three of eight floodwater-retarding dams are already built. In order to protect these from sediment damage landowners hurriedly are applying land-treatment measures suggested by the Thayer County Soil and Water Conservation District and the Bowman-Spring Branch Watershed Conservancy District plans covering 5,328 acres, or nearly one fourth of the watershed area.

This portion of the watershed is under the Great Plains Conservation Program, and half of the land being treated under the program is in the drainage above the floodwater-retarding structure sites.—RICHARD D. JISKRA and HARRY W. BELL, *Soil Conservationists, SCS, Hebron, Nebr.*

Monroe Samuel

Arkansas

District Tree Farmer

A STRONG pillar of the national farm woodland program is from Hope, Ark. Farmer, cattleman, cotton grower, good citizen, and area vice-president of the National Association of Soil and Water Conservation Districts—that's Monroe Samuel.

Recognized by the wood-using industries several years ago for his progressive farm forestry efforts, Monroe Samuel proudly displays his Arkansas Tree Farm sign.

He has engaged in sound farm forestry on 600 wooded acres of his 1,200-acre farm. His woodlands are selectively cut according to his woodland plan. He is capable of marking his own woodlands for all types of wood products. He applies timber stand improvement to remove cull and weed trees and make room for his fast growing pine and high quality hardwoods, consisting of cherrybark red oak, sweetgum, and white oak. Additionally, he has planted over 50,000 trees on his farm at DeAnn, near Hope, Ark.

Monroe Samuel was one of the first farmers to cooperate with the Hempstead County Soil and Water Conservation District. That was back in the 1930's. From an active cooperator, he became a supervisor of his local district; has since served as area vice-president, then as president of the Arkansas Association of Soil and Water Conservation Districts; as a director and now vice-president of the National Association; and on the NASCD committees for woodland and research.

Paramount among Mr. Samuel's many interests has been the woodland conservation program in his local soil conservation district. As a member of the board, he helped to pioneer the idea of making woodland conservation tools and services available to woodland owners. For example, the district lends tree injectors and provides chemicals to woodland owners who wish to do their own timber stand improvement work. For those unable to do their own work, the district has sponsored a contract crew that functions like the pond building contract service.

At present, Monroe Samuel advocates that districts encourage their cooperators to place their woodlands under the protection of the Arkansas Forestry Commission.

When more progress is made in the conservation district woodland program, look to Monroe Samuel.

TOMORROW'S WILDERNESS. Edited by Francois Leydet. *1963. Sierra Club, San Francisco. 262 pp., plates. $5.75.*

In 1949 the Sierra Club sponsored the first Wilderness Conference. Since then conferences have been held at 2-year intervals. This volume is the record of the papers and discussions of the Eighth Biennial Wilderness Conference held in 1963.

Each of the more recent conferences has had a specific theme and these have included the relationship of wild lands to civilization, the value of wilderness to science, and wilderness as a part of American heritage. The eighth conference continued consideration of the meaning of wilderness to us scientifically and culturally.

This book, along with those that recorded the three preceding conferences, gives a record of what might be called the wilderness movement. There is no better history of the crusade to preserve the natural beauty of the wilderness than is contained in these four books. They present the views and evaluations of a great number of competent participants.—LAWRENCE V. COMPTON, *Head Biologist, SCS.*

APPROVED PRACTICES IN SOIL CONSERVATION. By Albert B. Foster. *1964. Interstate Printers and Publishers, Inc., Danville, Ill. 384 pp., illus. $4.65.*

The third edition of this practical handbook of soil conservation techniques is slightly enlarged to include significant new practices adjusted to modern farming.

The principal addition is a chapter on "Minimum Tillage" covering such practices as mulch tillage, the plow-plant method of planting corn, and crop residue management for erosion control.

The subject of crop rotations is broadened to treat "cropping systems" that conserve soil and water. The chapter on terracing includes new information on parallel terraces.

This is primarily a "how-to-do-it" book, but the underlying principles of sound land use and conservation are kept before the user. —B.O.

New Publication

Conserving Our Natural Resources. *May 1964. USDA PA-614. 42 pp., illus.* A guide dealing with natural resources and their interrelationships, prepared by Federal Extension Service, Forest Service, and Soil Conservation Service in cooperation with the Fish and Wildlife Service.

School Forest Provides Income and Teaching Area

By Don L. Richardson
Area Conservationist, SCS, Tallulah, La.

A SCHOOL forest that will be a memorial to the far-sighted vision of members of the Continental Congress of the United States is being established by the Madison Parish School Board at Tallulah, La.

Through planting and selective cutting, a hardwood forest will eventually cover the "16th section" of land deeded to the school by the Continental Congress. The East Carroll-Madison Soil Conservation District is channeling technical and other assistance available from public agencies and private organizations to assist the school board in its forestry project.

Besides memorializing the Continental Congress, the forest will provide substantial annual returns to the school board treasury from the sale of woodland products. The board has already realized $15,000 from the sale of low quality trees removed in an improvement cutting.

School Land Policy

On May 20, 1785, the Continental Congress passed an ordinance for disposing of land in the western territory. That ordinance was the beginning of the land system of the United States that provided for the establishment of townships 6 miles square, each of which would be divided into 36 sections 1 mile square.

The act provided that section No. 16 of every township should be reserved for the maintenance of public schools within the township. This 16th section subsequently became known as the school section. The income from this land was to be an important support for the broad policy of popular education in the United States.

District Agreement

It was on this school land section that the Madison Parish School Board signed an agreement with the East Carroll-Madison district in December 1959 to develop the 16th section as a school forest. Besides this 640 acres, the school board owns 425 acres of partially open land. This had been used in the past as rented crop and grazing land, but neither tract had returned much financially.

The board had decided in 1958 to develop these two tracts as a financial investment with considerable potential and for the purpose of promoting a better appreciation and understanding of the hardwood resources of the Delta. A committee made a study of the proposed project and reported it highly desirable.

The East Carroll-Madison district developed a woodland conservation plan for the two tracts. The 16th section has been divided into compartments of 160 acres each by a system of roads, which also serve as fire lanes. Girdling of culls is planned to allow the reproduction of desirable species of trees. After this operation has been completed each compartment will be set up on a 12-year cutting cycle.

On the 425-acre tract of open land, 143 acres has been planted as follows: 26 acres cherrybark oak, 26 acres sweetgum, 3 acres sycamore, and 88 acres cottonwood. This area will be used as an observation plot. All costs will be recorded and will be used as an indicator for future plantings of this kind.

The 143 acres that were planted were put in the soil bank for 10 years.

Conservation Plan

In developing the plan, the district was assisted by the Soil Conservation Service, Louisiana Forestry Commission, U. S. Forest Service, Extension Service, International Paper Company, Chicago Mill and Lumber Company, and the Deltic Land and Timber Company.

The school board anticipates that the school forest will serve still another purpose. It will be available to forestry classes in any Louisiana college or university that wants to use it for hardwood studies. The vocational agriculture teacher at Tallulah is already using the forest as a demonstration in planting and improvement cutting for his vo-ag students.

From the Administrator:

Woodlands in the Conservation Program

FOREST conservation was one of our earliest efforts in conservation and development of natural resources. Even before Hugh Bennett had begun to attract recruits in his soil conservation crusade, such conservation pioneers as Theodore Roosevelt and Gifford Pinchot were establishing the National Forests and the Forest Service to administer them.

Within the past 30 years there has developed an appreciation of trees as a crop—both in their own right and for soil and water conservation—on the farms and other private land of the Nation.

By determining land capability for tree production, by planting thinning, and harvesting, and by applying other woodland-benefiting practices to the land, soil conservation districts have made real strides in perfecting everyday woodland conservation and management techniques.

These are practices that woodland owners and operators can put to use. Soil conservation districts, with their educational and technical aids, have been a potent factor in this progressive program of resource conservation. The districts can, and I think they will, play a vital role in making American Forestry Association's Conservation Program for American Forestry a reality.

I should like to emphasize that the woodland job on private land in the districts is being accomplished primarily through private resources with limited public assistance. Soil Conservation Service staffs assigned to soil conservation districts are available to provide assistance on woodland aspects of conservation farm plan development.

The conservation job on each farm, however, is the responsibility of land owners and operators themselves. The Soil Conservation Service part of this partnership is to provide, at the district's request, the trained technicians for making soil surveys, preparing conservation farm plans, and giving necessary onsite assistance in the application of planned practices on cropland, grassland, woodland, wildlife, and recreation land.

The SCS is concerned with people, with land, with water, and with the efficient use of these resources to produce crops and services that will make farms profitable on a continuing basis. The Service recognizes that trees are one of those crops, and encourages the planting and protection of trees where the land capability makes them the most suitable use for sustained productivity.

Obviously, the land owner or operator is the key to woodland conservation. Adoption of a conservation plan is a matter of the farmer's own decision in any case. It is his land and his pocketbook that are involved. The importance of this primary responsibility of the farmer on the woodland aspects of the conservation job is brought home by the fact that of the 508 million acres of commercial forest land in the United States, more than 366 million acres is in private ownership and more than four-fifths of that, or 300 million acres, is owned by more than 4¼ million people, 95 percent of whom are in soil conservation districts. Farmers, incidentally, own a larger percentage of our woodlands than does any other group—industry or government.

Altogether, 80 to 85 percent of the private owners have woodland which could be made more productive and more profitable if better management were applied. In soil conservation districts, much of the land owned by farmers is in woods. Some of the land now being cultivated or used for other purposes could be converted to tree production or recreation as its safest and most profitable use. The integrated use of these woodlands with land in other uses is essential to an effective soil and water conservation program.

The Soil Conservation Service is an agency dealing with soil and water conservation problems across the board on the Nation's farms and watersheds. We think of our sister agency, the U. S. Forest Service, as the manager of our vast system of National Forests. We also look to them for most of the forestry research which provides the technical information to be applied in woodland conservation and management. Through them the State Foresters receive financial assistance for forest management work. Our policy is to encourage use of our joint resources in helping landowners to improve their woodlands. In doing this we collaborate with State Foresters, State, county, and local units of government, conservation organizations, associations, private industry, consulting foresters, and others.

We work with a substantial number of landowners who cannot or do not wish to do all of their woodland conservation jobs themselves. We encourage them to use the services of private professional foresters or of State forestry departments. We want landowners to have the best possible guidance in using woodland conservation practices along with other needed soil and water conservation practices.

In this way, we think the Nation will make the most rapid progress in applying the Conservation Program for American Forestry.—D. A. WILLIAMS.

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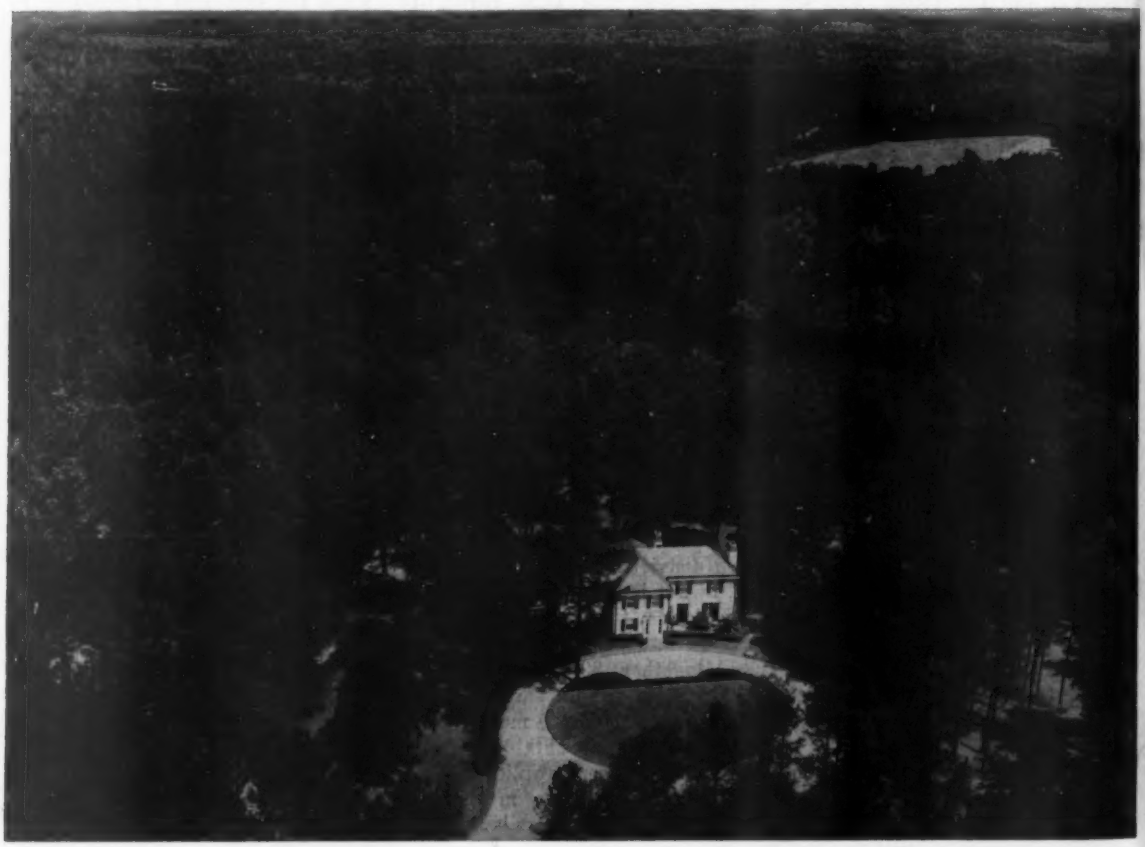
Planted Pines Are Major Crop on Plantation

More than 10,000 acres in planted pines are included in the Sunnyhill Plantation, a cooperator with the Kershaw Soil Conservation District, near Camden, S. C. The plantation is part of the estate of the late C. M. Leonard, one of South Carolina's pioneers in the reforestation program.

S. Tetterton was resident forester at the plantation for 16 years. SCS provided technical assistance on the conservation plan through Work Unit Conservationist V. T. Mullen.